

NOTES.

A NOTE in the *Times* states that the continuance of the meteorological work at Ben Nevis Observatory is practically assured. The staff had received notice that their services would not be required longer than October, but so satisfactory have been the offers of support that this order has been cancelled and winter stores have already been conveyed to the summit. The composition of the departmental committee of inquiry promised by Mr. Balfour will be announced shortly. So great has been the clamour against the threatened stoppage of the valuable work at the Observatory that it is confidently believed that the Treasury, guided by the advice of the committee, will enable the governing body to place the institution on a satisfactory financial footing of a permanent kind.

THE thirteenth annual general meeting of the Mining Institute of Great Britain was opened on Tuesday last at Newcastle-upon-Tyne, and at the same time the jubilee meeting of the North of England Institution of Mining and Mechanical Engineers, upon the foundation of which the Mining Institute was laid, was held.

THE *Pioneer Mail*, Allahabad, states that a donation of 50,000 rupees has been made by the Government of India to the Pasteur Institute of India at Kasauli, and the Punjab Government has handed over to the central committee of the Institute as a free gift Drumbar House at Kasauli for the accommodation of the poorer class of European and Eurasian patients, while Sir Charles Rivas has given 10,000 rupees to the Institute for the years 1902-3; grants have also been made by the Governments of Burma and the United Provinces of Agra and Oudh, and the chief commissioners of the Central Provinces and Assam. It is pointed out by our contemporary that no grants have been made by the Governments of Bombay and Madras.

THE next international conference on tuberculosis will be held in Berlin from October 22 to 26, and a provisional programme of the proceedings has just been issued. The subjects suggested for debate are the position of Governments with regard to the prevention of consumption; obligation to give information to the police; organisation of dispensaries; the task of schools with regard to the prevention of consumption; precautions against the dangers of milk; tuberculosis during infancy; protection of labour and prevention of consumption; classification and different modes of accommodating consumptives. In addition to the consideration of the foregoing questions, the members of the congress will inspect various establishments for the treatment of tuberculosis, and preparations are being made for a number of social functions.

THE sixth International Congress of Hydrology, Climatology and Geology will be opened at Grenoble on Monday, September 29, and continue in session until the following Saturday.

THE ninth expedition of the Liverpool School of Tropical Medicine has just proceeded to the Suez Canal to institute preventive measures against malaria. Major Ronald Ross, F.R.S., the leader of the expedition, will be joined at Brindisi by Sir William MacGregor, the Governor of Lagos, who has expressed a desire to witness the operations at Ismailia. The work will be begun immediately on the arrival of the expedition, and extensive operations commenced against mosquitoes.

AN archaeological expedition, composed of seven Japanese, has just started for Central Asia, under the leadership of Count Otani Kozui and M. Watanabe Tetsushin. The object of the expedition is to search for the Buddhistic remains in Central Asia, India and China, and to trace so far as is possible the course of Buddhism from its source northwards and eastwards to Japan.

WE have to report the death of Dr. H. von Wild at Zürich on September 5, in his sixty-ninth year. He was director of the Central Meteorological Station at Berne from 1863-5, director of the Russian Meteorological Service from 1868-1895, and president of the International Meteorological Committee from 1882-1892. He was the author of numerous works on meteorology and terrestrial magnetism, and the inventor of a wind-vane with a simple swinging wind-force plate which was much used in Switzerland. Prof. von Wild was probably best known to our readers as the editor of the Russian *Repertorium der Meteorologie*, which contained valuable elaborate discussions of scientific subjects. His greatest work was "Temperatur-Verhältnisse des russischen Reiches," which embraced 349 pages of text and 271 plates.

THE death is announced of Prof. J. J. Hummel, principal of the dyeing department of the Yorkshire College, Leeds; also of Mr. Alexander Sutherland, registrar of the University of Melbourne, and author of, among other works, "The Origin and Growth of the Moral Instinct."

LETTERS received from Uganda give a good account of the progress of Mr. Budgett, Balfour travelling student of Cambridge, on his zoological mission to the Semliki. On July 13, he writes that he was proposing to start next day from Kampala for Lake Albert, where he would probably stay at Batyaba, near the Nile end, the *Polypterus* which he was in quest of being stated to be abundant at this spot. Afterwards his plans were to proceed southward to Fort Portal and thence to the Semliki valley, where he would make a general collection and look after the okapi in the neighbouring forest. Mr. Jackson has most kindly allowed Mr. Budgett to have the assistance of one of his trained taxidermists.

A COMMISSION will shortly leave England to settle the boundary line between the western portion of northern Rhodesia and the Portuguese territory. The commissioners selected for the purpose are Lieut.-Colonel Jackson and Lieut.-Colonel J. M. Woodward, of the Intelligence Department of the War Office, and Colonel Harding, the resident of the British South Africa Company in Barotse-land, will probably accompany the party. As the country to be traversed is very little known, it is much to be desired that a naturalist should be attached to this expedition, and we are informed that the authorities of the Natural History Museum have been consulted on the subject. The commissioners, it is said, are quite favourable to this being done, if the necessary arrangements can be made.

A DESPATCH has been received at New York from Lieutenant Peary, dated from Chateau Bay, Labrador, stating that he is homeward bound on board the *Windward* and that all is well.

AN international marine laboratory is, it is stated, to be established at Christiania under the direction of Dr. Fridtjof Nansen.

Science announces that Mr. William H. Wright, of the Lick Observatory, has been selected to take charge of the D. O. Mills expedition, which is at present being got ready for a two years' stay in Chile to make a special study of the stars of the southern hemisphere. The superintendence of the erection of the observing station and the inauguration of the work of the expedition will be undertaken by Director W. W. Campbell.

A FUNGUS foray in connection with the Yorkshire Naturalists' Union will take place in Arnecliffe Woods and other portions of Eskdale from Saturday, September 27, to Thursday, October 2.

DURING the past week, Vesuvius has been showing a certain amount of activity and Stromboli has also been active, frequent explosions and detonations having taken place and much

black smoke having been emitted. Travellers from Alaska report that great volumes of steam are rising from the volcanoes Redoubt and Iliamna in the Augustine Mountains, while the Redoubt is also throwing up immense clouds of smoke. According to advices from Honolulu dated September 3, Mount Kaluaha is active and is ejecting streams of fire. M. Lacroix, of the French Natural History Museum, left on Tuesday last to begin his work at Martinique.

ACCORDING to a Reuter telegram from Rome, the Italian postal authorities have examined a scheme submitted by an engineer, named Piscicelli, for the establishment of an electric postal service. It is proposed, by means of this system, to transmit letters in aluminium boxes, travelling along overhead wires at the rate of 400 kilometres an hour. A letter could thus be sent from Rome to Naples in twenty-five minutes and from Rome to Paris in five hours. A technical commission has been appointed to report on the system before instituting a series of experiments between Rome and Naples.

IT is stated in the *British Medical Journal* that a somewhat new departure is about to be made by the North-Western Railway (U.S.), the headquarters of which are in Chicago. The plan is to equip every freight and passenger train with emergency chests containing splints, cotton bandages, antiseptics, restoratives, &c., and to open a school of instruction in first aid to the injured. The employes on all trains are to be required to attend the same and demonstrate that they comprehend the purpose of the teaching. The great purpose of the plan is to save lives, in the case of injuries, by the prompt and intelligent use of modern principles of treatment such as could be reasonably applied by an ordinary train crew, the contention being that an injured person in such circumstances will be able to reach the nearest hospital in a far better condition, and that his chances in all respects will be correspondingly heightened.

THE *Electrician* states that a patent has just been issued in America for a coin-controlled X-ray machine for public use. The external appearance of the apparatus is similar to that of the automatic cinematograph machines so commonly seen on railway platforms and other places. The observer places a coin in the slot, moves a lever, puts his hand, or whatever he wishes to examine, into a box without any sides, and looks down at it through a fluorescent screen which forms the top of the box. The coin, on being inserted, closes the primary circuit of an induction coil worked by a few dry cells, and the vacuum tube is in a position immediately below the object to be observed.

SOME four years ago, the Belgian Government offered a prize of 50,000 francs for a paste for matches which should not contain white sulphur. The commission appointed to judge the results of the competition has now reported that after careful experiment and analysis it finds that none of the products so far submitted fulfil the required conditions, being defective in inflammability, ignite on any surface, or in igniting eject inflammable matter containing some poisonous substance.

THE sum of 5000 dollars has, according to *Science*, been bequeathed to the Astronomical Society of the Pacific by Mr. John Dolbeer, of San Francisco. The money will be invested, and the interest devoted to the diffusion of astronomical knowledge.

A GOTHENBURG physician has, it is stated in the *Journal* of the Society of Arts, invented an apparatus by which milk can be brought into the form of powder similar in appearance to flour, and possessing all the qualities of milk in concentrated form, moisture excepted. It is maintained that the flour is perfectly soluble in water, and can be used for all purposes for which ordinary milk is employed. It is also claimed for it that

it does not get sour, or ferment, and in its dry state is not sensitive to changes in the weather. The cost of its production is estimated at 1s. 1d. per 106 quarts.

THE zoological station of Arcachon, under the direction of M. le Dr. F. Jolyet, professor of medicine in the University of Bordeaux, is now in full work, but we are sorry to learn that the laboratories are not fully occupied. Arcachon, with its grand "basin" always accessible, and large fishing fleet, is such a favourable spot for the marine zoologist that we are surprised that such should be the case. The report of the station for 1900-1 contains the results of several pieces of scientific work of much interest. Arcachon is a good place for the student of animal electricity, Torpedo being of common occurrence there. A new subsidiary station has recently been opened at Guethary, a small bathing-place near St. Jean de Luz, which is stated to have an excellent beach for dredging operations.

THERE are now three examples of the Grevy's zebra (*Equus grevyi*) in the Regent's Park Gardens, placed under the Zoological Society's care by the order of the King. Two of these were presented to His Majesty by the Emperor Menelik, and the third is the survivor of a pair presented by the same Emperor to Queen Victoria. Unfortunately, they are all three of the female sex. But Colonel Harrington, the British representative in Abyssinia, has most kindly presented to the Zoological Society a pair of this zebra now living in his compound at Abis Abeba, and it has been arranged to send out one of the keepers to bring them home next month, so that there is a good chance of this magnificent animal, by far the largest and finest of all the wild Equidæ now in existence on the earth's surface, being permanently established in England.

THE weekly weather reports issued by the Meteorological Council up to August 30 show that in the principal wheat-producing districts, which include the eastern portions of Great Britain and the south of England, the only part where the rainfall had reached the average amount was the east of England; in the east of Scotland the deficit was 3 inches. In the principal grazing districts, which include the western portions of Great Britain, the south-west of England and the whole of Ireland, the only part where the rainfall had reached the normal amount was the north of Ireland; in the south-west of England the deficit was 5 inches. These figures will be somewhat modified by the heavy fall that accompanied the severe storm which passed along St. George's Channel and the Irish Sea on the night of September 2-3, when the amount exceeded an inch both in the north and south of Ireland; and in the counties of Wicklow and Dublin, which lay in the direct path of the centre of the storm, the fall in twenty-four hours amounted to nearly 3 inches. Nearly 2 inches fell on parts of the south coast of England during the same night.

METEOROLOGISTS are much indebted to Mr. R. C. Mossman for the publication of part iii. of his valuable papers on the meteorology of Edinburgh, which appears in a recent number of the *Transactions* of the Royal Society of Edinburgh. The present paper deals more particularly with new monthly and annual averages for the ten years 1891-1900 and the fifty years 1851-1900, and includes, *inter alia*, means of temperature and pressure, and rainfall values for periods varying from 124 to 137 years. An appendix continues the very interesting account, commenced in part ii., of remarkable atmospheric and celestial phenomena that have occurred in past years, and contains references to two events as far back as the twelfth century. The complete work undoubtedly forms the most useful and comprehensive discussion of the climatology of Edinburgh that exists.

A PAPER by Mr. Walter Wesché in the *Journal* of the Royal Microscopical Society for August bids fair to throw light on the

relations between the mouth-organs of diptera and those of other insects. Even in such dipterous genera as *Tabanus* and *Culex*, the full number of mouth parts of a typical insect is not present, the absent parts being one pair of palpi, which are commonly regarded as the labial palpi. In other families, such as the Muscidae and Syrphidae, where mandibles and even maxillae are absent, chitinous structures are visible on the dorsal side of the labium representing the aborted parts. Mr. Wesché now finds that certain members of the Muscidae are provided with a second pair of palpi in addition to those always present and which are generally regarded as maxillary. "In several species of the *Anthomyia* family, in the genera *Hyetodesia*, *Spilogaster* and *Hydrotea*, are to be found at the base of the labium and hypopharynx, and connected with the apodemes or levers that work those parts, two hairy processes, one on each apodeme. These are jointless, chitinous in structure, and have much the appearance of ordinary palpi." In *Hyetodesia basalis*, the organs measure about 0.003 inch (0.085 mm.) in length, while in *Spilogaster duplicata* they are the same length and about half the breadth. In other species of the same family, the rudiments are reduced to a few hairs and a minute tubercle; in the *Sarco* phagidae, rudiments are found in *Myiocera carinifrons*; in the Muscidae proper in *Musca corvina* and *M. domestica*, and the palpi have also been found in the families Sepsidae, Opomyzidae and Borboridae. The discovery of these rudimentary palpi, which are undoubtedly maxillary, leads to the conclusion that the palpi so conspicuous on the proboscis of many flies are not the maxillary but the labial palpi.

EIGHT years ago Prof. Omori studied the distribution in time of the after-shocks of several great Japanese earthquakes, and concluded that a strong earthquake is almost invariably followed by weaker ones, and a destructive one by hundreds or even thousands of minor shocks, which gradually diminish in frequency and strength, but may continue to be felt for several years. In a recent valuable memoir (*Boll. Soc. Sism. Ital.*, vol. viii. pp. 17-48), Dr. Cancani has investigated the distribution in intensity of the after-shocks of three hundred Italian earthquakes, all strong enough to produce at least slight damage in buildings. Such earthquakes, he finds, are never isolated, but are always preceded or followed by others generally weaker. The total duration of an earthquake-period (perhaps earthquake-series or group would be a better term) is a function of several variables, but depends especially on the depth of the seismic focus. When the depth is small, the earthquake-period is of brief duration, generally about ten days; when moderate, the after-shocks may continue for about three months, and when the depth is great they may last for several years. In 70 per cent. of the earthquake-periods, the strongest shock occurred during the initial phase or first tenth part of its total duration.

THE Report of the Botanical Exchange Club of the British Isles for 1901 has been delayed, as the distributor, the Rev. E. S. Marshall, explains, in order to obtain critical opinions on some of the specimens. The number of specimens sent in by twenty-five contributors amounts to more than 2700. Many of these are varieties or hybrids, others represent new localities. Several new species are recorded for Lancashire, notably *Helleborus viridis* and *Helleborus foetidus*, *Scirpus caricis* and *Carex tetraluscula*. A discovery of *Euphorbia exigua* in limestone crevices on the north coast of Wales lends support to the view that it is a native of Britain. *Statice Limonium* × *variflora* and *Salicornia lignosa*, both growing near Bosham in west Sussex, have elicited interesting criticisms, but the most important collection, *Diotis candidissima*, was made by Mr. C. P. Hurst in Wexford. There it grows in quantity on a sandy bar, as may be seen from the two illustrations given, which are reproduced from photographs taken by the finder.

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A NUMBER of papers dealing with electric traction, which were read before the Association Française pour l'Avancement des Sciences last month, are summarised in *L'Éclairage électrique* for August 23. These will be found especially useful by those who are interested in accumulator traction, whether for tramways or automobiles, as the suitability of the accumulator is considered from several points of view. The general conclusions are not very favourable to the accumulator in its present commercial form, although accumulator traction was voted a perfectly practical solution of the problem of running a tramway electrically in a position in which trolley wires were inadmissible. Accumulators were not, however, regarded as so suitable for automobiles, as their weight involved difficulties in the construction of the cars and tyres which were not so important in a tramcar heavy in itself and running on a prepared track. For a public service of electric automobiles, the only system considered practical was one in which power was obtained from a trolley wire, with omnibuses or carriages running on the ordinary roadway, a system which obviously possesses some advantages over even the electric tramway.

A BRIEF account of the latest apparatus for rendering air respirable in a closed space is described by M. Desgrez in the *Bulletin* of the French Physical Society, No. 185, the apparatus having been devised by M. Desgrez in collaboration with M. Balthazard. The underlying principle is the decomposition by water of sodium peroxide, with liberation of oxygen, absorption of carbon dioxide and destruction of the toxic products of respiration. The apparatus consists of (1) a distributor which, by the action of clockwork, drops the peroxide into water at regular intervals; (2) a cubical steel box containing the water; and (3) a ventilating fan. A refrigerator is also supplied, as a general rule, to counteract the heating effects of the chemical reactions. A complete apparatus has been constructed, capable of enabling a man to work for at least three-quarters of an hour in a closed space, and weighing in all about 12 kilograms.

THE current number of the *Proceedings* of the Edinburgh Mathematical Society contains a note on decimal coinage and approximations by Mr. J. W. Butters. Apart from the advantages of a decimal system of coinage, the author calls attention to several points which cannot be too strongly emphasised. One is the common complaint as to the time wasted by learners in using long and cumbersome methods (often calculating sums of money to a fraction of a penny with a long numerator and denominator), from ignorance of the use of decimals. This evil, the author thinks, could be remedied by teaching decimals before vulgar fractions, as is often done in Germany. Another point is the use of the unit's figure instead of the decimal point as a landmark in counting places in multiplication and division. Everyone knows, or should know, that the characteristic of a logarithm is given by the number of places that its first significant figure is to the left of the unit's figure, whereas if the decimal point is taken as the landmark, we are told that the characteristic is one more or one less than something or other and confusion may arise. Mr. Butters suggests that the decimal point be called the unit's point and regarded as used for fixing the unit's place, and he shows how multiplication and division of decimals are simplified by adopting this view. The necessity for such a change is emphasised by the fact that the ordinary method of dividing decimals fails to give the correct remainder. Finally, the author points out the saving in labour in using decimals of a pound and contracted methods for ordinary calculations.

THE current number of the *Journal* of the Anthropological Institute fully maintains the great reputation which that publication has earned. There are three papers on customs and beliefs of various African tribes, one on a remarkable musical

instrument of the Bushmen and two papers on Kabyle pottery. Indian ethnography is represented by one paper and Malay ethnography by three; other papers deal with the Nicobars, Sarawak, Tasmania, Tonga and New Zealand. The range is wide alike in geography and matter, so that practically all departments of anthropology are represented, and the twenty plates are of exceptional interest and excellence.

ANTHROPOLOGY is to be congratulated in having found so able and enthusiastic a student as the Rev. J. Roscoe, of Uganda, whose paper on the manners and customs of the Baganda is of extreme interest. Amongst other important novelties, it contains an account of a typical form of totemism which was previously unrecorded among the Baganda, and even the magical aspect appears to be present. Very suggestive are the customs relating to twins and the sympathy between human beings and plantains. The people appear to have but recently emerged from matriarchy into patriarchy.

ANOTHER important paper in the same *Journal* of the Anthropological Institute is that on some animistic beliefs among the Yaos of British Central Africa, by the Rev. A. Hetherwick. The Yao present us with three stages of animistic belief, (1) the *lisoka* or human shade, the agent in dreams, delirium, &c.; (2) this *lisoka* regarded as *mulungu* and an object of worship, the controller of the affairs of this life; and (3) *mulungu* as expressing the great spirit agency, the creator of the world and of all life. Between these three conceptions of the spirit nature no definite line can be drawn.

In the concluding portion of his article on "Regeneration in Plants" in the *Biologisches Centralblatt*, Prof. Goebel has an instructive chapter on the disposition of adventitious developments which follow upon injury or wounding. That it may be referred to a polarity depending upon internal, not external, factors follows from Vochtinger's researches. Tracing the argument back further—e.g., what does polarity mean?—Beijerinck's hypothesis of an upward current shoot forming and a downward current root forming is accepted in part, and experiments which can be explained upon this hypothesis are mentioned. Sometimes, however, this is not satisfactory, and Prof. Goebel finds that a more general and correct explanation of certain anomalous cases is obtained by a consideration of the direction of flow of the food current. Finally, Prof. Goebel regards with favour the idea of a controlling enzyme as postulated by Beijerinck.

The Geological Survey of Western Australia, in *Bulletin* No. 6 (1902), gives the results of the chemical and mineralogical research work carried out by Mr. E. S. Simpson since the laboratory was established in 1897. There are notes on native gold and its compounds with tellurium and other elements, as well as notes on various ores, on coal, peat, clays, water, and on sundry intrusive rocks.

We have received three important papers devoted to embryology and development. Two of these, dealing respectively with amphibians and the brachiopod *Lingula*, appear in a recent issue of the *Journal* of the Tokio College of Science. The third, by Dr. J. A. Masterman, which is published in the *Transactions* of the Royal Society of Edinburgh, treats of echinoderm development.

THE August issue of the *Journal* of the Department of Agriculture of Victoria is composed of the annual reports of the officers in charge of the various branches of the Department, prefaced by a brief summary of the whole by Mr. S. Williamson Wallace, the Director of Agriculture for the colony. The reports are interesting reading, and tell of much good work done on scientific lines at a comparatively small cost.

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THE *Scientific American*, New York, for August 30, contains an illustrated article, by Mr. F. Moore, upon the United States Naval Observatory.

PART 4 of the new and cheaper edition of Kerner and Oliver's "The Natural History of Plants" has reached us from Messrs. Blackie and Son, Ltd.

MR. BERNARD QUARITCH has just issued a new part, devoted to India and the Far East, of his "Catalogue of Works on Oriental History, Languages and Literature," containing particulars of many rare and valuable books.

THE additions to the Zoological Society's Gardens during the past week include two Bonnet Monkeys (*Macacus sinicus*) from India, presented by Mr. J. H. Osborne; two Diana Monkeys (*Cercopithecus diana*) from West Africa, presented by Mr. E. Skinner; a Levaillant's Cynictis (*Cynictis penicillata*) from South Africa, presented by Mr. E. C. S. Jervis; two Cape Eared Owls (*Asio capensis*) from Africa, presented by Captain Fraser; a Diana Monkey (*Cercopithecus diana*), a White-thighed Colobus (*Colobus vellerosus*), two Grey-headed Sparrows (*Passer simplex*) from West Africa, a Simpae Monkey (*Semnopithecus melalophus*) from Sumatra, a Salle's Amazon (*Chrysotis ventralis*) from St. Domingo, two Striated Tanagers (*Tanagra striata*) from Buenos Ayres, a Blue Sugar-bird (*Dacnis cayana*), an All-green Tanager (*Chlorophonia viridis*) from Brazil, deposited; two Swinhoe's Pheasants (*Euplocamus swinhoii*), an Argus Pheasant (*Argus giganteus*) bred in the Gardens.

OUR ASTRONOMICAL COLUMN.

ANOTHER NEW COMET.—From information received, through Mr. E. W. Maunder, from Mr. John Grigg (a member of the Cometary Section of the British Astronomical Association), of Thames, New Zealand, it appears that the comet discovered by Perrine, which, if this news is confirmed, has been erroneously named 1902 b, is not the second, but the third comet discovered this year.

Mr. Grigg says that whilst using his 3½-inch Wray equatorial, with a power of 25 on July 22d. 18h. 30m. G.M.T., he saw a nebulous object which was roughly noted as R.A.=11h. 35m., Dec.=+7° 0', and reference to various charts and tables elicited the fact that this was not a previously recorded nebula or comet. On the following evening, the same object was doubtfully recorded as 24' further south and 7' eastward of its previous position. Feeling satisfied that this was really a new comet, Mr. Grigg acquainted Mr. Baracchi (Melbourne Observatory) and the Press Association of his supposed discovery.

Three days later, and also on August 1 and 2, the same observer again saw the suspected comet and recorded the following positions:—

| d. | h. | m. | Dec. |
|-----------|--------|------------|------------|
| July 23·8 | G.M.T. | R.A.=11 40 | Dec.=+6 35 |
| 26·8 | " | "=12 0 | "=+5 30 |
| 29·8 | " | "=12 20 | "=+4 20 |

and from these he calculated the following elements:—

$$T = \text{June } 20, 1902.$$

$$\begin{aligned}\omega &= 292^{\circ} 43' \\ \Omega &= 217^{\circ} 48' \\ i &= 18^{\circ} 24' \\ \log q &= 9^{\circ} 7241.\end{aligned}$$

The observations are all of them a little doubtful owing to persistent haze and moonlight, but Mr. Grigg gives the particulars for "what they are worth," and has sent them in this uncertain state in order to catch the outgoing mail.

The position of his observatory is:

| | | | |
|-----------|-----|-----|---------------------|
| Longitude | ... | ... | 175° 32' 38" 54" E. |
| Latitude | ... | ... | 37° 8' 23" 21" S. |